

SYSTEM AND METHOD FOR EXTRACTING ENERGY FROM AN ULTRACAPACITOR

ABSTRACT OF THE DISCLOSURE

An extraction system detects a voltage stored in a capacitor and then extracts energy from the capacitor when the voltage falls below a predetermined value. The capacitor may be an ultracapacitor formed in silicon or another semiconductor material, and the predetermined value may equal or be based on a minimum operating voltage of a load driven by the ultracapacitor. Once the energy is extracted, the system converts the energy into a voltage sufficient to continue driving the load. Energy extraction may be performed by a variety of circuits including a linear regulator, a switched capacitor voltage converter, an adiabatic amplifier, and a DC-to-DC boost converter. The system may further include a monitoring circuit which detects dynamic changes in the converted ultracapacitor voltage over to maintain the operating voltage of the load.